<u>CLAIM AMENDMENTS</u>

1-7.   (CANCELLED).

8.   (CURRENTLY AMENDED) A method of controlling use by concurrent users of a distributed resource on a network, wherein use of the resource is limited to a specified maximum number of concurrent users, the method comprising the computer-implemented steps of:

      providing a distributed lock manager process comprising a plurality of local lock

            manager processes executing on a corresponding plurality of hosts,

      <u>wherein each of the plurality of local lock manager processes may grant a lock on the</u>

            <u>same resource</u>;

      associating a user identification for each user with one host of the plurality of hosts; and

      responding to a request for the resource associated with a first user having a first user

            identification associated with a first host of the plurality of hosts by requesting a

            lock from a first local lock manager process executing on the first host.

9.   (ORIGINAL) A method as recited in Claim 8, wherein during said step of associating a user identification with one host, the first user is associated with the first host based on information indicating that the first user signs onto the network most frequently at a terminal node of the network that uses fewer intervening network devices to pass messages to the first host than to any other host of the plurality of hosts.

10.   (ORIGINAL) A method as recited in Claim 8, wherein during said step of associating a user identification with one host, the first user is associated with the first host based on information indicating that the first user signs onto the network most frequently at a terminal node of the network geographically closer to the first host than to any other of the plurality of hosts.

11.   (ORIGINAL) A method as recited in Claim 8, wherein each local lock manager process maintains a lock data structure associated with the resource and the lock data structure includes a local resource maximum field; and further comprising the steps of generating and storing a value in the local resource maximum field maintained by each local lock manager process such that a summation over all the local lock manager process of the value in the local resource maximum field does not exceed the maximum number of concurrent users.

12.   (ORIGINAL) A method as recited in Claim 11, wherein a first value in the local resource maximum field maintained by the first local lock manager process is based on a number of users associated with the first host.

13.   (ORIGINAL) A method as recited in Claim 8, wherein a copy of the distributed resource resides on a host of the plurality of hosts.

14.   (ORIGINAL) A method as recited in Claim 8, wherein a copy of the distributed resource resides on a computing device that is not among the plurality of hosts.

15.   (ORIGINAL) A method as recited in Claim 11, further comprising:
determining whether a number of outstanding locks granted by the first local lock
          manager process is less than a particular value stored in the local resource
          maximum field maintained by the first local lock manager process; and
if the number of outstanding locks is less than the particular value, then generating and
          returning a lock object.

16.   (CURRENTLY AMENDED) A method of controlling concurrent users of a distributed resource on a network, the resource limited to a maximum number of concurrent users, the method comprising the computer-implemented steps of:

receiving a request for the distributed resource from a client process for a user having a user identification;

determining a home location associated with the user identification, the home location indicating a unique host among a plurality of hosts that execute a corresponding plurality of local lock manager processes of a distributed lock manager process, wherein each of the plurality of local lock manager processes may grant a lock on the same resource;

sending a request for a lock object for the distributed resource to a first local lock manager process of the distributed lock manager process, the request including the home location;

receiving the lock object for the distributed resource from a second local lock manager process executing on the unique host, if a number of outstanding locks granted by the second local lock manager process is less than a value of a local resource maximum defined for the second local lock manager process; and

providing access to the resource to the first client only in response to receiving the lock object.

17. (ORIGINAL) A method as recited in Claim 16, wherein a first host on which the first local lock manager process executes is different from the unique host on which the second local lock manager process executes.

18. (ORIGINAL) A method as recited in Claim 16, wherein a first host on which the first local lock manager process is executing is in a local network with a computing device on which the client process is executing.

19. (ORIGINAL) A method as recited in Claim 16, further comprising the steps of determining whether a request from the client process to set the retry time period has

been received, and if so, automatically repeating the steps of determining, sending, receiving and providing.

20.   (ORIGINAL) A method of controlling concurrent users of a distributed resource on a network, the distributed resource limited to a maximum number of concurrent users, the method comprising the steps of:

receiving at a first local lock manager process of a distributed lock manager process a request for a lock object for the distributed resource from a resource server, wherein the request includes data indicating a particular user home location;

determining whether a second local lock manager process of the distributed lock manager process is associated with the particular user home location, and if so, requesting the lock object from the second local lock manager process,

wherein the first local lock manager process may grant a lock on the same resource as the second local lock manager process.

21.   (ORIGINAL) A method as recited in Claim 20, further comprising the steps of:

when the second lock manager process is not associated with the particular home location, determining whether a first number of outstanding locks granted by the first local lock manager process for the distributed resource is less than a first local maximum number of users no greater than the maximum number of concurrent users, and if so, then incrementing the first number of outstanding locks granted and providing the lock object to the resource server.

22.   (ORIGINAL) A method as recited in Claim 20, wherein each local lock manager process of the distributed lock manager process stores a corresponding local maximum number of users for the distributed resource in a lock data structure associated with the local lock manager process, and an aggregate of local maximum numbers in lock data structures associated with all lock manager processes in the distributed lock manager process for the

distributed resource is no greater than the maximum number of concurrent users to which the distributed resource is limited.

23.   (ORIGINAL) A method as recited in Claim 20, further comprising the steps of:

receiving a request for a lock object from a third local lock manager process of the
distributed lock manager process in response to a request from a second resource
server;

determining whether a first number of outstanding locks granted by the first lock
manager process for the distributed resource is less than a first local maximum
number of users no greater than the maximum number of concurrent users; and

if it is determined the first number of outstanding locks granted is less than the first local
maximum number, then
incrementing the first number of outstanding locks granted, and
providing the lock object for the second resource server.

24.   (ORIGINAL) A method as recited in Claim 20, further comprising the step of providing the lock object to the resource server in response to receiving the lock object from the second lock manager process.

25.   (CURRENTLY AMENDED) A method of distributing a resource on a network, the resource limited to a maximum number of concurrent users, the method comprising the steps of:

providing a distributed lock manager process comprising a plurality of local lock
manager processes executing on a corresponding plurality of hosts,
wherein each of the plurality of local lock manager processes may grant a lock on the
same resource;

generating a value for a local resource maximum number of users stored on each host of
the plurality of hosts such that a summation over the plurality of hosts of the value

for the local resource maximum yields an aggregate value that does not exceed

the maximum number of concurrent users;

determining whether to increase a first value in a first resource maximum stored on a first

host of the plurality of hosts; and

if it is determined to increase the first resource maximum, then

decreasing by a particular amount a second value in a second resource maximum

stored on a second host of the plurality of hosts, and

increasing by the particular amount the first value in the first resource maximum

stored on the first host,

wherein each local lock manager process is configured to grant a lock for the resource if

the number of outstanding locks granted by the local lock manager process is less

than a value of the local resource maximum stored on the corresponding host.

26.   (ORIGINAL) A method as recited in Claim 25, said step of determining whether to

increase the first value further comprising determining the time of day and the geographic

location served by the first host.

27.   (ORIGINAL) A method as recited in Claim 25, said step of determining whether to

increase the first value further comprising determining whether a difference between the

number of outstanding locks granted and the first value is less than a first predetermined

threshold.

28.   (ORIGINAL) A method as recited in Claim 25, further comprising, if it is determined to

increase the first value, then determining whether to decrease the value based on a

whether a difference between the number of outstanding locks granted and the second

value is greater than a second predetermined threshold.

29.   (ORIGINAL) A method as recited in Claim 28, wherein the particular amount is based

on the second predetermined threshold.

30.   (ORIGINAL) A method as recited in Claim 29, wherein the particular amount is no greater than the second predetermined threshold.

31.   (CANCELLED)

32.   (CURRENTLY AMENDED) A computer-readable medium carrying one or more sequences of instructions for controlling a number of concurrent users of a distributed resource on a network, the resource limited to a maximum number of concurrent users, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

> associating a user identification for each user with one host of a plurality of hosts on
>> which are executing a corresponding plurality of local lock manager processes of
>> a distributed lock manager process,
>
> wherein each of the plurality of local lock manager processes may grant a lock on the
>> same resource; and
>
> responding to a request for the resource associated with a first user having a first user
>> identification associated with a first host of the plurality of hosts by requesting a
>> lock from a first local lock manager executing on the first host.

33.   (CURRENTLY AMENDED) A computer-readable medium carrying one or more sequences of instructions for controlling a number of concurrent users of a distributed resource on a network, the resource limited to a maximum number of concurrent users, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

> receiving a request for the distributed resource from a client process for a user having a
>> user identification;

determining one home location associated with the user identification, the home location

indicating a unique host among a plurality of hosts executing a corresponding

plurality of local lock manager processes of a distributed lock manager process,

wherein each of the plurality of local lock manager processes may grant a lock on the

same resource; and

sending a request for a lock object for the distributed resource to a first local lock

manager process of the distributed lock manager process, the request including

the home location;

receiving the lock object for the distributed resource from a second local lock manager

process executing on the unique host, if a number of outstanding locks granted by

the second local lock manager process is less than a value of a local resource

maximum defined for the second local lock manager process; and

providing access to the resource to the first client in response to receiving the lock object.

34.   (CURRENTLY AMENDED) A computer-readable medium carrying one or more

sequences of instructions for controlling a number of concurrent users of a distributed

resource on a network, the distributed resource limited to a maximum number of

concurrent users which instructions, when executed by one or more processors, cause the

one or more processors to carry out the steps of:

receiving at a first local lock manager process of a distributed lock manager process a

request for a lock object for the distributed resource from a resource server, the

request including data indicating a particular user home location, and the first

local lock manager process executing on a first host;

determining whether a second local lock manager process of the distributed lock manager

process is associated with the particular user home location, the second local lock

manager process executing on a second host different from the first host,

wherein the first local lock manager process may grant a lock on the same resource as the second local lock manager process; and

if it is determined that the second local lock manager process is associated with the particular home location, then requesting the lock object from the second local lock manager process.

35. (CURRENTLY AMENDED) A computer-readable medium carrying one or more sequences of instructions for distributing a resource on a network, the resource limited to a maximum number of concurrent users, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

generating a value for a local resource maximum number of users stored on each host of a plurality of hosts executing a corresponding plurality of local lock manager processes of a distributed lock manager process such that a summation over the plurality of hosts of the value for the local resource maximum yields an aggregate value that does not exceed the maximum number of concurrent users,

wherein each of the plurality of local lock manager processes may grant a lock on the same resource;

determining whether to increase a first value in a first resource maximum stored on a first host of the plurality of hosts; and

if it is determined to increase the first resource maximum, then

decreasing by a particular amount a second value in a second resource maximum stored on a second host of the plurality of hosts, and

increasing by the particular amount the first value in the first resource maximum stored on the first host,

wherein each local lock manager process is configured to grant a lock for the resource if the number of outstanding locks granted by the local lock manager process is less than a value of the local resource maximum stored on the corresponding host.

36.   (CANCELLED)

37.   (CURRENTLY AMENDED) An apparatus for controlling a number of concurrent users
of a distributed resource on a network, the resource limited to a maximum number of
concurrent users, comprising:

means for associating a user identification for each of the concurrent users with a unique
host; and

means for responding to a request for the resource associated with a first user among the
concurrent users who has a first user identification associated with a first host by
requesting a lock from a local lock manager process executing on the first host
wherein the local lock manager process may grant a lock on the same resource as another
local lock manager process.

38.   (CURRENTLY AMENDED) An apparatus for controlling a number of concurrent users
of a distributed resource on a network, the resource limited to a maximum number of concurrent
users, comprising:

means for receiving a request for the distributed resource from a client process for a user
having a user identification;

means for determining one home location associated with the user identification, the
home location indicating a unique host among a plurality of hosts executing a
corresponding plurality of local lock manager processes of a distributed lock
manager process,
wherein each of the plurality of local lock manager processes may grant a lock on the
same resource;

means for sending a request for a lock object for the distributed resource to a first local
lock manager process of the distributed lock manager process, the request
including the home location;

means for receiving the lock object for the distributed resource from a second local lock

manager process executing on the unique host, if a number of outstanding locks

granted by the second local lock manager process is less than a value of a local

resource maximum defined for the second local lock manager process; and

means for providing access to the resource to the first client in response to receiving the

lock object.

39.   (CURRENTLY AMENDED) An apparatus for controlling a number of concurrent users

of a distributed resource on a network, the distributed resource limited to a maximum

number of concurrent users, comprising:

means for receiving at a first local lock manager process of a distributed lock manager

process a request for a lock object for the distributed resource from a resource

server, the request including data indicating a particular user home location, and

the first local lock manager process executing on a first host;

means for determining whether a second local lock manager of the distributed lock

manager is associated with the particular user home location, the second local

lock manager process executing on a second host different from the first host,

wherein the first local lock manager process may grant a lock on the same resource as the

second local lock manager process; and

means for requesting the lock object from the second local lock manager, if it is

determined that the second local lock manager is associated with the particular

home location.

40.   (ORIGINAL) An apparatus for distributing a resource on a network, the resource limited

to a maximum number of concurrent users, comprising:

means for generating a value for a local resource maximum number of users stored on

each host of a plurality of hosts in the network such that a summation over the

plurality of hosts of the value for the local resource maximum yields an aggregate

value that does not exceed the maximum number of concurrent users;

means for determining whether to increase a first value in a first resource maximum

stored on a first host of the plurality of hosts; and

means for decreasing by a particular amount a second value in a second resource

maximum stored on a second host of the plurality of hosts, if it is determined to

increase the first resource maximum;

means for increasing by the particular amount the first value in the first resource

maximum stored on the first host, if it is determined to increase the first resource

maximum;

means for granting a lock for the resource if the number of outstanding locks granted by

the local lock manager is less than a value of the local resource maximum stored

on the corresponding host.

41.   (CANCELLED)

42.   (CURRENTLY AMENDED) An apparatus for controlling use by concurrent users of a

distributed resource on a network, wherein use of the resource is limited to a specified

maximum number of concurrent users, comprising:

a host that is communicatively coupled to a network that contains the distributed resource

and that comprises one or more processors and a computer-readable storage

medium;

one or more sequences of instructions stored in the computer-readable storage medium

which, when executed by the one or more processors, cause the one or more

processors to carry out the steps of:

associating a user identification for each user with one host of the plurality of

hosts; and

responding to a request for the resource associated with a first user having a first

user identification associated with a first host of the plurality of hosts by

requesting a lock from a lock manager process executing on the first host,

wherein the local lock manager process may grant a lock on the same resource as

another local lock manager process.

43.   (CURRENTLY AMENDED) An apparatus controlling concurrent users of a distributed

resource on a network, wherein the resource is limited to a maximum number of

concurrent users, comprising:

a host that is communicatively coupled to a network that contains the distributed resource

and that comprises one or more processors and a computer-readable storage

medium;

one or more sequences of instructions stored in the computer-readable storage medium

which, when executed by the one or more processors, cause the one or more

processors to carry out the steps of:

receiving a request for the distributed resource from a client process for a user having a

user identification;

determining a home location associated with the user identification, the home location

indicating a unique host among a plurality of hosts that execute a corresponding

plurality of local lock manager processes of a distributed lock manager process,

wherein each of the plurality of local lock manager processes may grant a lock on the

same resource;

sending a request for a lock object for the distributed resource to a first local lock

manager process of the distributed lock manager process, the request including

the home location;

receiving the lock object for the distributed resource from a second local lock manager

process executing on the unique host, if a number of outstanding locks granted by

the second local lock manager process is less than a value of a local resource

maximum defined for the second local lock manager process; and

providing access to the resource to the first client only in response to receiving the lock

object.

44.   (ORIGINAL) An apparatus controlling concurrent users of a distributed resource on a

network, wherein the resource is limited to a maximum number of concurrent users,

comprising:

a host that is communicatively coupled to a network that contains the distributed resource

and that comprises one or more processors and a computer-readable storage

medium;

one or more sequences of instructions stored in the computer-readable storage medium

which, when executed by the one or more processors, cause the one or more

processors to carry out the steps of:

generating a value for a local resource maximum number of users stored on each host of a

plurality of hosts such that a summation over the plurality of hosts of the value for

the local resource maximum yields an aggregate value that does not exceed the

maximum number of concurrent users;

determining whether to increase a first value in a first resource maximum stored on a first

host of the plurality of hosts; and

if it is determined to increase the first resource maximum, then

decreasing by a particular amount a second value in a second resource maximum

stored on a second host of the plurality of hosts, and

increasing by the particular amount the first value in the first resource maximum

stored on the first host,

granting a lock for the resource if the number of outstanding locks granted by a lock

manager process is less than a value of the local resource maximum stored on the

first host.